

We CLAIM:

1. A method of selectively disrupting a red blood cell, the method comprising the steps of:  
(a) providing a red blood cell; (b) electrosensitising said red blood cell; and (c) disrupting said red blood cell by subjecting said red blood cell to ultrasound.

5 2. The a method according to claim 1, wherein said electrosensitizing comprises the step of applying an electric pulse to a red blood cell.

3. The method or use according to claim 2, wherein said electric pulse is in the range of 0.1kVolts/cm to 10 kVolts/cm under *in vitro* conditions.

10 4. The method according to claim 1, further comprising the step of loading the red blood cell with an agent.

5. The method according to claim 4, in which the sensitisation of the red blood cell precedes the loading of the agent.

6. The method or use according to claim 4, in which the loading of the agent precedes the sensitisation of the red blood cell.

15 7. The method according to claim 4, in which the sensitisation of the red blood cell and the loading of the agent are simultaneous.

8. A method for selectively releasing an agent from a red blood cell comprising the steps of:  
(a) loading a red blood cell with an agent;

(b) electrosensitising the red blood cell; and

20 (c) causing the agent to be released from the sensitised red blood cell by applying ultrasound at a frequency and energy sufficient to cause disruption of the red blood cell but insufficient to cause disruption of unsensitised red blood cells.

9. The method according to claim 7, in which the electrosensitisation procedure is an *in vitro* or *ex-vivo* procedure.

10. The method according to claim 7, in which the electrosensitisation comprises the step of applying an electric field to a red blood cell.

11. The method according to claim 10, in which the electric pulse is from about 0.1kVolts/cm to about 10 kVolts/cm under *in vitro* conditions.

5 12. The method according to claim 3 or 11, in which the electric pulse is applied for between 1µs and 100 milliseconds.

13. The method according to claim 1 or 8, in which the ultrasound is selected from the group consisting of diagnostic ultrasound, therapeutic ultrasound and a combination of diagnostic and therapeutic ultrasound.

10 14. The method according to claim 13, in which the applied ultrasound energy source is at a power level of from about 0.05W/cm<sup>2</sup> to about 100W/cm<sup>2</sup>.

15. A method for delivering an agent to a target site in a vertebrate, comprising the steps of:  
(a) loading a red blood cell with an agent;  
(b) electrosensitising the red blood cell;

15 (c) introducing the red blood cell into a vertebrate; and

(d) causing the agent to be released from the sensitised red blood cell by applying ultrasound at a frequency and energy sufficient to cause disruption of the red blood cell but insufficient to cause disruption of unsensitised red blood cells.

20 16. The method according to claim 15, in which the red blood cell of step (c) comprises polyethylene glycol on its surface.

17. The method according to claim 15, in which the vertebrate is a mammal.

18. The method according to claim 8 or 15, in which the loading of the agent is simultaneous with the sensitisation of the red blood cell.

25 19. The method according to of claim 8 or 15, in which the sensitisation of the red blood cell precedes the loading of the agent.

20. The method according to claims 8 or 15, in which the loading of the agent precedes the sensitisation of the red blood cell.

21. The method according to claim 4, 8 or 15, in which the loading is performed by a procedure selected from a group consisting of electroporation, sonoporation, microinjection, membrane intercalation, microparticle bombardment, lipid-mediated transfection, viral infection, osmosis, osmotic pulsing, diffusion, endocytosis, and crosslinking to a red blood cell surface component.

22. A method or use according to any preceding claim, in which the agent is, a polypeptide or a nucleic acid, a virus.

23. The method according to claim 22, in which the agent is combined with an imaging agent.

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